



BEIJING BRUSSELS CHICAGO DALLAS FRANKFURT GENEVA HONG KONG LONDON LOS ANGELES NEW YORK SAN FRANCISCO SHANGHAI SINGAPORE SYDNEY TOKYO WASHINGTON, D.C.



Agricultural Science Transactions: Nuts and Bolts of IP Protections and Licensing

Historical Methods of Plant Protection (Pre-GMO)

- Plant Breeders Rights/Plant Variety Rights—
 - Sexual Reproduction
 - Protects Plant Varieties, But with Exceptions (research and saved seed), Not as Strong as Traditional Patents
 - Essentially Derived Varieties
 - US—Plant Variety Protection Act
- Plant Patents—Asexual Reproduction
 - US—Recognizes

Breeders Rights

“The Breeders’ Privilege” UPOV 91, Art 15(1)

- *(Compulsory exceptions)* The breeder's right shall not extend to
 - (i) acts done privately and for non-commercial purposes,
 - (ii) acts done **for experimental purposes** and
 - (iii) acts done **for the purpose of breeding other varieties**, and, ...[derived varieties aside], acts ...[of commercial exploitation].. in respect of such other varieties.
- It is **never** an infringement of a PVP right to use the variety for further breeding.
- It is **generally** not an infringement of a PVP right to exploit or sell the new variety bred.
 - **Exception** for ‘essentially derived varieties’

Essentially Derived Varieties

“a variety shall be deemed to be essentially derived from another variety ("the initial variety") when

- “it is **predominantly derived** from the initial variety, or from a variety that is itself predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety,
- it is **clearly distinguishable** from the initial variety and
- except for the differences which result from the act of derivation, it **conforms to the initial variety in the expression of the essential characteristics** that result from the genotype or combination of genotypes of the initial variety.” [Article 14.5.b, UPOV 1991]

GMOs – The New Frontier

- Genetically Modified Organisms
 - Insertion of Genes of Genetic material in a specific site in the plant DNA
- Traditional Patent Rights Extended to GMO Plants
 - Making, Using, Selling, Importing
- Key Research Crops: *Arabidopsis*, Tomatoes, Rice, Tobacco
- Key Commercial Crops: Corn, Soy, Cotton, Canola
- Patent Protection can occur in two stages:
 - Invention of the Gene/Trait
 - Transgenic Plant itself

Key Terminology

- Genes & Traits
 - Composition of Matter Claims
 - Up-Regulation vs. Down-Regulation
 - Homology & Orthology: Defining the Gene Sequence within the same plant or a different plant to yield the same function
 - Traits confer Function – Yield and Stress Tolerance, Pathogen Resistance, Insect Resistance; Herbicide Tolerance (Round-Up™)
- Enabling Technology
- Events = Transgenic Plants
- Overlaps with Plant Breeders Rights
 - Example: Farm Saved Seed

GM Pipeline – Discovery to Commercial Launch

- 7-10 Year Timeline
- “Phases”
 - Phase I – Discovery, Green house, Non-Commercial Field Trials
 - Phase II – Commercial Field Trials (Standard 2 years)
 - Phase III – Regulatory Field Trials (Internal Regulatory Packages) with elite Germplasm
 - Phase IV – Commercial Bulk-Up; Registration/Deregulation & Commercial Launch

License Grants

- Exclusivity is Key for Genes
 - Gene Shuffling is an Issue
 - Homology provides a “Zone of Exclusivity”
 - Capture the Gene, not just the “Function” (i.e. the Trait)
 - Typically crop limited
- Enabling Technology provides Freedom To Operate
 - Nonexclusive license permissible
 - Trade Secrets may also provide protections

Value Capture

- Trait Revenue & Value Share
 - Growers retain a portion of value share
- Stacking Traits & Multi-Gene Traits – Allocation Issues
- Enabling Technology – Net Sales
- With GM plants, value capture does not extend beyond patent life

Grant-Back Obligations

- Patentable vs. Non-Patentable Improvements
- Materials Transfer

Additional Items

- Regulatory & Stewardship
 - Importance is driven by scope of exclusivity and number of commercial partners
- Termination and Destruction of Biological Materials
 - Gene by Gene basis
 - Crop basis
 - Destruction/Return of Biological Materials
- Nonassignability of Biological Materials

Practice Areas

- Corporate
- Health Care
- Information Law and Privacy
- Intellectual Property and Technology
- International Intellectual Property
- Private Equity and Venture Capital

Admissions and Certifications

- U.S. District Court, C.D. of California, 1997
- California, 1995

Education

- Harvard Law School (J.D., 1995, *cum laude*)
- Dartmouth College (A.B., 1991, *magna cum laude*); Phi Beta Kappa; Rufus Choate Scholar

JOSHUA T. HOFHEIMER leads the firm's West Coast Technology Transactions Practice. Mr. Hofheimer's work spans a broad array of technology and intellectual property and commercial transactions, ranging from agriscience and biotechnology, to medical devices and pharmaceuticals, to software, Internet and new media transactions. Mr. Hofheimer has teamed with lawyers in multiple offices to lead the firm's representation of agricultural technology clients in emerging technology development, agricultural biotechnology and alternative fuels. Notably he represented Monsanto Company in the ground-breaking 2007 Yield and Stress Collaboration Agreement with BASF Plant Sciences LLC to develop high yield and stress tolerant transgenic plant products. He also has negotiated research, funding and commercialization agreements, joint ventures, contract manufacturing agreements, license agreements, supply chain agreements, and technology spin-outs, as well as developed strategies to exploit proprietary products growing out of the research programs of agri-tech and bio-tech clientele. He has worked with non-profit and private sector ventures to extract patentable technology from a universities and academic institutions for development and commercial exploitation.

Mr. Hofheimer currently advises Los Angeles County and other large customers on a variety of software related matters, including the county's acquisition of a new voting system for its Election processes, several complex health services systems and a new multi-layered county-wide traffic control system. Mr. Hofheimer represented a leading health-care provider in the procurement of a mail order pharmacy system. He also has represented a leading broadband telecommunications company in successful negotiations for the construction of a constellation of mid-earth orbital satellites.

Many of Mr. Hofheimer's clients have included start-up companies, convergence technology companies, a semiconductor tooling manufacturer, and broadband internet content providers, for whom Mr. Hofheimer has acted as general outside corporate counsel, negotiating business development and strategic agreements such as content syndication agreements, licensing agreements, distribution agreements, e-commerce agreements, marketing and co-promotion agreements, joint venture agreements and web design agreements. He also advises clients on general corporate matters, including private equity financings, IP due diligence, LLC formation agreements, stock and asset acquisitions, executive compensation packages, implementing employee stock option plans, and internal reorganizations and restructurings.

World Offices

BEIJING

Suite 3527, Tower 1
China World Trade Center
1 Jian Guo Men Wai Avenue
Beijing 100004
China
T: 86.10.6505.5359
F: 86.10.6505.5360

BRUSSELS

Square de Meeûs, 35
B-1000 Brussels
Belgium
T: 32.2.504.6400
F: 32.2.504.6401

CHICAGO

One South Dearborn
Chicago, Illinois 60603
T: 312.853.7000
F: 312.853.7036

DALLAS

717 North Harwood
Suite 3400
Dallas, Texas 75201
T: 214.981.3300
F: 214.981.3400

FRANKFURT

Taunusanlage 1
60329
Frankfurt am Main
Germany
T: 49.69.22.22.1.4000
F: 49.69.22.22.1.4001

GENEVA

Rue de Lausanne 139
Sixth Floor
1202 Geneva
Switzerland
T: 41.22.308.00.00
F: 41.22.308.00.01

HONG KONG

Level 39
Two Int'l Finance Centre
8 Finance Street
Central, Hong Kong
T: 852.2509.7888
F: 852.2509.3110

LONDON

Woolgate Exchange
25 Basinghall Street
London, EC2V 5HA
United Kingdom
T: 44.20.7360.3600
F: 44.20.7626.7937

LOS ANGELES

555 West Fifth Street
Los Angeles, California 90013
T: 213.896.6000
F: 213.896.6600

NEW YORK

787 Seventh Avenue
New York, New York 10019
T: 212.839.5300
F: 212.839.5599

SAN FRANCISCO

555 California Street
San Francisco, California 94104
T: 415.772.1200
F: 415.772.7400

SHANGHAI

Suite 2501
Shui On Plaza
333 Middle Huai Hai Road
Shanghai 200021
China
T: 86.21.5306.2866
F: 86.21.5306.8966

SINGAPORE

6 Battery Road
Suite 40-01
Singapore 049909
T: 65.6230.3900
F: 65.6230.3939

SYDNEY

Level 10, 7 Macquarie Place
Sydney NSW 2000
Australia
T: 61.2.8214.2200
F: 61.2.8214.2211

TOKYO

Sidley Austin
Gaikokuho Jimu Bengoshi Jimusho
Nishikawa & Partners
- Registered Associated Offices -

Marunouchi Building 23F
4-1, Marunouchi 2-chome
Chiyoda-Ku, Tokyo 100-6323
Japan
T: 81.3.3218.5900
F: 81.3.3218.5922

WASHINGTON, D.C.

1501 K Street N.W.
Washington, D.C. 20005
T: 202.736.8000
F: 202.736.8711

Sidley Austin LLP, a Delaware limited liability partnership which operates at the firm's offices other than Chicago, London, Hong Kong, and Sydney, is affiliated with other partnerships, including Sidley Austin LLP, an Illinois limited liability partnership (Chicago); Sidley Austin LLP, a separate Delaware limited liability partnership (London); Sidley Austin, a New York general partnership (Hong Kong); Sidley Austin, a Delaware general partnership of registered foreign lawyers restricted to practicing foreign law (Sydney); and Sidley Austin Gaikokuho Jimu Bengoshi Jimusho, in association with Nishikawa & Partners (Tokyo). The affiliated partnerships are referred to herein collectively as Sidley Austin, Sidley, or the firm.